

## PATENT COOPERATION TREATY

PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY



(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 09 SEP 2005

PCT

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Applicant's or agent's file reference TY04001PCT		<b>FOR FURTHER ACTION</b> See Form PCT/IPEA416	
International application No. PCT/JP2004/006706		International filing date (day/month/year) 12.05.2004	Priority date (day/month/year) 25.06.2003
International Patent Classification (IPC) or national classification and IPC B60K7/00			
Applicant TOYOTA JIDOSHA KABUSHIKI KAISHA ET AL			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau a total of 2 sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>			
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>			
Date of submission of the demand  06.12.2004		Date of completion of this report  09.09.2005	
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016		Authorized Officer  Schultze, Y  Telephone No. +31 70 340-1092 	

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PCT/JP2004/006706

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**Box No. I Basis of the report**

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1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
  - ☐ publication of the international application (under Rule 12.4)
  - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

**Description, Pages**

1-13 as originally filed

**Claims, Numbers**

1-5 as amended (together with any statement) under Art. 19 PCT

**Drawings, Sheets**

1/2-2/2 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing *(specify):*
  - ☐ any table(s) related to sequence listing *(specify):*
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing *(specify):*
  - ☐ any table(s) related to sequence listing *(specify):*

\* If item 4 applies, some or all of these sheets may be marked "superseded."

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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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**1. Statement**

Novelty (N)	Yes: Claims	3,5
	No: Claims	1,2,4
Inventive step (IS)	Yes: Claims	
	No: Claims	1-5
Industrial applicability (IA)	Yes: Claims	1-5
	No: Claims	

**2. Citations and explanations (Rule 70.7):**

**see separate sheet**

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

1. Reference is made to the following document:

D1: WO 02/083446 A (NAGAYA GO ; BRIDGESTONE CORP (JP)) 24 October  
2002 (2002-10-24)

2. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1, 2 and 4 is not new in the sense of Article 33(2) PCT.

2.1. The document D1 discloses (the references in parentheses applying to this document):

A suspension system for a vehicle comprising:  
an outer rotor type motor having a stator (3S) provided on a outer surface of a cylindrical member (3a) that defines space open to at least an inboard side of the vehicle, and a rotor (3R) rotatably supported by the cylindrical member (3a), wherein the outer rotor type motor is provided within a wheel (2) and the rotor (3R) of the outer rotor is connected to the wheel (2); and a suspension arm (6a, 6b) whose mounting portion is provided on an inner surface of the cylindrical member (figure 1); and  
a hub (3b) that is fixed to the wheel in the vicinity of a wheel rim (2b) and is connected to the cylindrical member (3a) via a bearing (3j) that allows relative rotation between the cylindrical member (3a) and the wheel (2)(figure 1).

The subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.

2.2. Document D1 also the additional features of dependent claims 2 and 4.

3. Dependent claims 3 and 5 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step, the reasons being as follows:

- The feature "...a sealing that is arranged between the cylindrical member and the rotor

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(SEPARATE SHEET)**

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and inboard of the rotor..." is a matter of normal design procedure.

A second bearing is disclosed by D1.

- The additional features of claim 5 are merely one of several straightforward possibilities from which the skilled person would select, in accordance with circumstances, without the exercise of inventive skill.

## CLAIMS

1. (amended) A suspension system for a vehicle,  
comprising:

5 an outer rotor type motor having a stator  
provided on an outer surface of a cylindrical member that  
defines space open to at least an inboard side of the  
vehicle, and a rotor rotatably supported by the  
cylindrical member, wherein the outer rotor type motor is  
10 provided within a wheel and the rotor of the outer rotor  
is connected to the wheel;

a suspension arm whose mounting portion is  
provided on an inner surface of the cylindrical member;  
and

15 a hub that is fixed to the wheel in the vicinity  
of a wheel rim and is connected to the cylindrical member  
via a bearing that allows relative rotation between the  
cylindrical member and the wheel.

20 2. (amended) The suspension system as claimed  
in claim 1,  
wherein the hub has an annular shape so as to be  
accommodated between the cylindrical member and the rotor.

25 3. (amended) The suspension system as claimed  
in claim 1 further comprising:

a sealing that is arranged between the  
cylindrical member and the rotor and inboard of the rotor;  
and

30 a second bearing that is arranged between the  
cylindrical member and the rotor and adjacent to the  
sealing.

4. The suspension system as claimed in claim 1, wherein connected to the rotor is a brake disk that is disposed such that a disk surface of the brake disk is located within the space defined by the cylindrical member.

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5. (new) The suspension system as claimed in claim 4, wherein the brake disk is bolted to the hub adjacent to the bearing.

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**AMENDED CLAIMS**

[received by the International Bureau on 04 October 2004 (04.10.2004);  
original claims 1, 2 and 3 amended; new claim 5 added; remaining claim  
unchanged (2 pages)]